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ABSTRACT

A variety of special needs programs were funded by the Michigan Department of Education in 1972. Data collection instruments were developed to evaluate these programs and data were gathered. This initial effort was important in the movement toward implementation of a more sophisticated evaluation design. Specifically, the paper discussed the final results and conclusions of the initial study, the methodology and tentative findings of a more comprehensive 1974 study, and plans for future evaluations emphasizing methodological considerations. (Author)

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THE EVALUATION OF VOCATIONAL EDUCATION SPECIAL NEEDS PROGRAMS

By

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The evaluation of Vocational Education Special Needs programs for disadvantaged and handicapped students in Michigan was begun in 1972. The evaluation was conducted by staff personnel administratively located within Research, Evaluation, and Assessment Services of the Michigan Department of Education. The evaluation personnel work with various educational programs including compensatory education, general education, and vocational education programs among others in the Department to provide evaluation services where necessary.

The Vocational Education Special Needs programs were in existence for several years prior to an evaluation. Funds for the programs were distributed to local agencies through the Vocational-Technical Services of the Michigan Department of Education. Services were delivered to handicapped and disadvantaged students directly through these local agencies. These programs were Federally funded through Part B of the Vocational Education Amendments of 1968.

At the time the evaluation began the programs were run through a bureaucratic administrative structure with the appropriate rules, regulations, and forms, etc. The evaluation was perceived by the administrative unit as an appendage to the ongoing operating structure for the purpose of meeting a requirement. It was only through concerted efforts, time, and delivery of evaluation services that this perception was modified to a more workable relationship.

The evaluation of these programs was conducted in two basic areas: a) completion of periodic evaluation reports; and b) provision of additional evaluation services to Department and local personnel where necessary on a continuous basis. Two of the evaluation reports are summarized in a later

section of this paper while the various evaluation services provided are explained in the following paragraphs.

The evaluation services provided involve a number of specific items. They include assisting in the development of performance objectives, design and implementation of evaluation techniques, instrument development, and presentations at various conferences, workshops, seminars, etc. Assistance directly to local project personnel in the field is also provided in many instances where the services are requested or where the need is demonstrated. These activities occur continuously on both a formal and informal basis.

Evaluation services are provided throughout the year as project proposals are developed by those in the field, reviewed by Career Education Planning Districts and the Department, modified by the originators, and finally approved, funded, operated, and evaluated. The inputs provided through the state level evaluation in these areas encourage a positive concern for documentation of performance and promote the implementation of more systematized administrative methods.

Two evaluation reports on these programs have been completed--one for the FY 1973 programs, and one for the FY 1974 programs. The original study was designed with emphasis on rapid output from which future directions could be taken. The second was designed with greater depth to provide a more detailed examination of a larger spectrum of program aspects. Summaries of these two reports follow.

The first Special Needs evaluation report was completed for programs operated during FY 1973. This was basically a descriptive report which was used to provide a background for further studies of greater depth in these

areas. The emphasis of the study was on information which could be rapidly gathered, reported and which would supplement that previously used for administrative policy-making purposes.

Information for use in the report was gathered from several sources. General records and program files were used within the Department of Education. An instrument was developed and used to gather additional information from local project personnel. Background information of an informal nature was also gathered through frequent contacts with local agencies.

The instrument was designed through the aid of many persons including those from the program administrative unit and the Research Coordinating Unit among others. The developed items were redrafted several times based on suggestions and recommendations from these persons until they were deemed acceptable. The instrument was then processed through the standard Department external forms control procedures to provide additional input to insure quality items.

Liberal time lines were provided for instrument completion by the field persons. Almost three months were allowed between the instrument mailing and the final cutoff date for report inclusion. Department of Education assistance in completing the form was available and frequently provided during the time the instrument was in the field.

Cooperation from the local school personnel was excellent. The initial response rate for the programs was 80 percent by the specified deadline. A follow-up mailing and phone calls produced a 96 percent response rate by the final cutoff date.

The information collected, then analyzed and reported, concerned basically five major areas. These areas were programs, participants, staff, costs, and operation.

The program data included the numbers, types, locations, and levels of programs. Participant data were composed of the numbers, characteristics, dropout rates, and racial-ethnic composition of the participants served. In addition skeletal data were collected on potential participants waiting to enter the programs. Staff data were made up of numbers, characteristics, educational and experience amounts, levels, racial-ethnic composition and percent of time devoted to the projects. Cost data included a total outlay figure, subtotals of summer and regular programs, county cost figures, and average costs per program and participant. The operation data were composed of instructional organization, teaching methods and resources, and the participant selection criteria.

The data were analyzed descriptively. Percentage coefficients and various nonparametric statistical tests were used to analyze data which were basically nominal. Because of constraints within the State Department of Education, a concerted effort was made to keep the analyses simple so that they could readily be interpreted and used by persons not thoroughly familiar with statistical analysis techniques. Comparisons were frequently made between the Special Needs programs and regular programs to determine various differences.

The descriptive conclusions derived in the study are presented in abstract form in Appendix A. A review of these will prove beneficial in interpreting the total evaluation effort. To capsulize, a few of the basic findings are as follows:

There were 153 programs operated during FY 1973 in 43 percent of the Michigan counties. The programs served handicapped (29 percent), disadvantaged (50 percent) and handicapped and disadvantaged (21 percent) students.

The programs were primarily offered during the regular school year (79 percent) at the secondary level (84 percent). Further, they were offered in larger than average districts with higher than average dropout rates.

There were 12,500 participants served of which 66 percent were disadvantaged and 34 percent were handicapped. There were over 800 staff persons hired to work in the programs of which 80 percent were professionals and 20 percent were paraprofessionals. There was a total of $4,180,162.00 spent on the FY 1973 programs of which 94 percent was spent for regular school year programs and 6 percent on summer programs. The average program grant was slightly in excess of $27,000.00 which worked out to an average participant grant of $335.00.

The second Special Needs evaluation report was recently completed on programs operated during FY 1974. This was a more comprehensive evaluation report than the previous one and included effectiveness information in addition to descriptive information similar to that included in the FY 1973 report. Again with this study the emphasis was directed toward information which could supplement that previously used for administrative policy-making purposes.

Data for use in the report were gathered from program records and files within the Department of Education as well as from local project personnel in the field. An instrument was developed using the previous instrument as a base, changed in line with the experience gained from a prior administration, plus added items dealing with the effectiveness area. As with the previous instrument a variety of personnel both inside and outside of the Department had input into the development process including the Executive Director of the Michigan State Advisory Council for Vocational Education.

The instrument was then processed through the standard Department external forms control procedures to provide additional input for the items.

More than two months were allowed for completion of the instruments by the school personnel. A follow-up mailing was sent to non-respondents after one month. This follow-up plus a series of phone calls resulted in a final response rate of 99 percent.

The information used for the report included descriptive data on programs, participants, staff, costs, operation, and effectiveness. Data were collected on the same five descriptive areas as for the previous report. The information collected for each of the areas, though modified somewhat, was similar to that gathered on the prior programs. The instrument was expanded to include the effectiveness area for the first time. Data on student completion of stated performance objectives were the central focus of this phase.

The data were analyzed with appropriate nominal and ordinal data analysis techniques. These included percentage coefficients, chi-square tests, rank correlation coefficients, and a Kolmogorov-Smirnov test. As with the previous study, an effort was made to simplify the statistical analysis such that it could be interpreted and used by persons not thoroughly familiar with analytical techniques. Comparisons were drawn between the FY 1974 programs, the FY 1973 programs, and the regular programs in many cases to determine various trends and differences.

The conclusions of the study are presented in abstract form in Appendix B. A review of the complete group will prove helpful in understanding the total evaluation effort. A few of the findings relating to student achievement will be summarized here.

Participant achievement was assessed in terms of the locally developed performance objectives. Participant progress was measured in three objective

attainment categories as follows: a) 75 - 100 percent attainment, b) 50 - 74 percent attainment, and c) 0 - 49 percent attainment.

It was found that for all the students 62 percent were in the first group, 24 percent were in the second group, and 14 percent were in the third group. Thus the majority of the Special Needs participants fell into the upper achievement group. The difference in the achievement distributions between the handicapped and disadvantaged student groups was insignificant although the actual figures indicated that the disadvantaged students attained somewhat more objectives than the handicapped students on the average.

Participant objective attainment was also examined in terms of the facility type and staff support technique used for the programs. It was found that participants in shared-time high school programs using roving support staff who provided assistance to participants where necessary had a relatively high average objective attainment rate. These programs offered in outside facilities including hospitals, correctional institutions, reservations, and nursing homes among others also had a high average participant objective attainment rate.

Since the inception of the Special Needs evaluation component, and the consequent services provided, several changes have been made in the operation of the Michigan programs. Some of these are described as follows:

An improved system of record keeping for the programs was instituted. In addition to the file folders kept on each program, computer records are now being processed for financial and program-student data. The time lag between data collection and use was reduced in some cases. As part of the improvement, data are now collected more frequently to keep it current.

The programs were further dispersed throughout the State. Students in more Michigan counties are being served now than previously. Correspondingly

the average cost per program has been reduced by over $800.00 while the average program cost per student has been reduced by about $35.00.

The organizational emphasis of the programs was shifted. The majority of programs offered previously were diversified (Special Needs and regular students in separate classes). The majority of programs now are combined (Special Needs and regular students in the same classes) with additional assistance provided to the Special Needs students through the use of paraprofessionals.

A set of guidelines was developed describing in detail the rules for application, the requirements and priorities for project funding, and funded project reporting requirements. This was distributed throughout the State for use by local agencies in planning and preparing applications. It was helpful in providing a background for persons not familiar with the program and was successful in eliminating many information requests.

The review process for project proposals within the Michigan Department of Education was examined to clearly delineate each of the review steps necessary. As a result of this the process was streamlined, eliminating unnecessary review procedures, and flow charted so that the increasing number of proposals could be efficiently processed.

Progress toward determining the number of potential handicapped and disadvantaged recipients across the State was made. Cooperation with Special Education personnel has been helpful in this area. Through coordinated instrumentation in both areas, estimated figures for both the handicapped and disadvantaged student groups were determined.

A minimum set of student performance objectives was developed for vocational education programs in the State. They were developed by local educators with assistance provided by the Michigan Department of Education. These

objectives are currently being implemented for the Special Needs programs by the local agencies that elect to do so. It is anticipated that these will provide a greater commonality among programs for future evaluation.

These activities serve to demonstrate that the evaluation procedures have had impact on the ongoing administrative and operational activities of the Special Needs programs. In addition to the impact, the evaluation and administration of the programs were coordinated in a way that resulted in the use of independent evaluation services to provide better programs for handicapped and disadvantaged students.

Future plans call for further evaluation efforts in the areas of variable relationships and attitude change. The evaluation will be directed to answering the question of why student learning does or does not take place under specified conditions. Through a better understanding of these functions more effective programs can be developed.

Variable relationships among input variables like facility type, staff organization, and average funding amounts will be related to the criterion variables of objective attainment, attitude change, and employability. While some of these variables are currently being measured, the significant missing link is in terms of attitude change. Particularly with the disadvantaged student research, the attitude factor was shown to be highly important. Yet measuring attitudes is difficult under the best of conditions, aside from the fact that the Special Needs programs cover a variety of content areas at several grade levels, and are located throughout the State.

Despite difficulties, however, a pilot program of participant attitude measurement is currently under consideration. One facet of this research involves the use of a modified Q-Sort technique. Here, students must choose descriptive statements which represent their feelings and arrange them in a

hierarchy. Some of the statements are: a) I often feel upset in school; b) My teacher makes me feel I am not good enough and c) My family respects my ideas. Currently 40 responses are being used to gauge student attitudes.

In addition, the semantic differential technique is also being tested. Here, attitude measures are being collected concerning the student's perceptions of himself, his school, his classroom, his teacher and his principal.

Overall, the Michigan Special Needs program evaluation has provided useful information, important services, and a continuity of reporting. While the effort has not been without difficulties, it has been favorably viewed by many of those involved. Because of this it is anticipated that this pilot effort in the area of Special Needs evaluation will be used as a basis for more in-depth evaluation in other vocational education areas.

Conclusions

The composite group of programs was composed of disadvantaged programs (50 percent), handicapped programs (29 percent), and handicapped and disadvantaged programs (21 percent). The majority (79 percent) of the programs were operated for the regular school year 1972-73, while the remainder (21 percent) were operated in the summer of 1972. Further, of the complete group of programs a majority (52 percent) were diversified (Special Needs students in separate classes), while the remainder (48 percent) were combined (Special Needs students in regular classes). Most programs (84 percent) were at the secondary level, while the remainder (16 percent) were at the post-secondary level.

The programs were located in less than half (43 percent) of the Michigan counties. The five counties of Ingham, Macomb, Oakland, St. Clair, and Wayne contained a major portion (44 percent) of the programs. Also they accounted for almost half (49 percent) of the students served. Some students from counties without programs were served in neighboring county shared-time programs. The Special Needs programs were operated in districts which were larger than average (5700 pupils), had above average (6.02 percent) dropout rates, and which were similar to other districts in terms of the student and staff racial-ethnic composition.

There were approximately 12,500 students (head count) in the programs of which over half (66 percent) were disadvantaged, while the remainder (34 percent) were handicapped. Their average daily attendance rate was 85 percent. Further, an additional 2000 (16 percent) were waiting to enter the programs when space became available. Of this 2000, 1200 (60 percent) were

disadvantaged, and 800 (40 percent) were handicapped. Approximately 1200 students (10 percent) dropped out. Six percent of the students had been in a Special Needs program prior to the 1972-73 school year. The racial-ethnic composition of the students was White (86 percent), Black (12 percent), Spanish Surnamed American (1 percent), and American Indian (1 percent).

The local education agencies selected students basically in accordance with the criteria specified in the Vocational Education Amendments of 1968. Generally, lack of ability to succeed in a regular vocational program was used as the criteria. Failing work, low grades, low intelligence quotient, excessive tardiness and absenteeism, high dropout potential, and public aid receipt were among those additional factors considered. Further, diagnostic and psychological testing were used as necessary.

The largest handicapped student group was the mentally handicapped (69 percent). This group was followed by the emotionally disturbed (14 percent). These groups together composed a major portion (83 percent) of the total group. Physical disorders composed the remaining amount (17 percent).

According to the frequency importance and ranking importance methods, there were four teaching methods and resources which stood out in their importance for the Special Needs programs. These were a) discussions, b) individual guidance, c) individual projects, and d) teacher presentations.

The local program administrators spent less than half (48 percent) of their administrative time on these programs. They had more teaching experience than other types of employment experience. Their highest earned degrees, obtained on the average nine years ago, ranged from associate degrees to doctoral degrees. A majority (69 percent) of the administrators held masters degrees as their highest earned degrees. The administrators' racial-ethnic

groups were White (70 percent), Black (28 percent), and American Indian (2 percent). Two-thirds (67 percent) of the administrators had State Teaching Certificates, while less than half (43 percent) were vocationally certified. Post-secondary administrators and those in some institutions other than schools were not required to have this certification.

The local program counselors spent over half (54 percent) of their counseling time on these programs. The counselors had more teaching experience than any other type of employment experience. The highest earned degrees of the counselors ranged from associate degrees to doctoral degrees. The majority (76 percent) of the counselors held masters degrees as their highest earned degrees. The counselors' racial-ethnic groups were White (73 percent), Black (23 percent), American Indian (2 percent) and Spanish Surnamed American (2 percent). Over nine-tenths (91 percent) of the counselors had State Teaching Certificates, while more than a tenth (11 percent) were vocationally certified. Post-secondary counselors and those in some institutions other than schools were not required to have this certification.

The local program teachers spent almost two-thirds (65 percent) of their available teaching time on these programs. The teachers had an approximately equal amount of previous teaching experience and non-school work experience. The majority (58 percent) of the teachers held bachelors degrees as their highest earned degrees. The teachers' racial-ethnic groups were White (72 percent), Black (27 percent), and American Indian (1 percent). Almost three-quarters (72 percent) of the teachers held State Teaching Certificates, while over two-thirds (71 percent) held vocational certification. The average student/teacher ratio in the programs was 33/1.

The local program paraprofessionals spent almost all of their working time (87 percent) on these programs. The paraprofessionals had more non-school work experience than any other type of employment experience. The highest earned degrees of the paraprofessionals ranged from an incomplete high school education to a masters degree. A majority (61 percent) of the paraprofessionals listed a high school diploma as their highest earned degree. The paraprofessionals' racial-ethnic groups were White (75 percent), Black (24 percent), and Spanish Surnamed Americans (1 percent). Less than a tenth (9 percent) of the paraprofessionals had State Teaching Certificates, while slightly more (19 percent) held State Vocational Certificates.

More programs were offered in the trade and industrial education area than any other area. This was true for both handicapped and disadvantaged students. Overall the trade and industrial area was represaented in over a quarter (26 percent) of the programs. This was followed in order by the areas of office (17 percent), health (15 percent), home economics (15 percent), distributive (13 percent), technical (8 percent), and agriculture (6 percent).

The majority (59 percent) of the programs were offered in regular school facilities, while the remainder (41 percent) were offered in other types of facilities. There were a wide variety of facilities used from hospitals to greenhouses, although each was generally used by only a few projects. Within these regular school facilities, over two-fifths (42 percent) of the program time was spent in classrooms, while a third (33 percent) was spent in shops. The remainder (25 percent) was spent in other types of school facilities.

The total cost of the summer 1972 and the school year 1972-73 programs was over four million dollars ($4,180,162). One-half (50 percent) was spent on disadvantaged students only. Over a quarter (26 percent) was spent on handicapped students only. The remainder (24 percent) was spent on pro-

grams serving some handicapped and some disadvantaged students. This figure represents an amount greater than the minimum of 25 percent of the monies appropriated under the Vocational Education Amendments of 1968 Part B ($3,931,994) which is required to be spent on these programs. Over nine-tenths (94 percent) of these monies was spent for programs operated during the regular school year, while less than a tenth (6 percent) was spent on summer programs. Over three-quarters (78 percent) of the funds was spent for secondary programs, while the remainder (22 percent) was spent for post-secondary programs. Local funds used to supplement these grant monies ran just over $400,000.

The five counties of Ingham, Kalamazoo, Macomb, Oakland, and Wayne accounted for over half (52 percent) of the total Special Needs funds spent. These five counties also contained two-fifths (40 percent) of the Special Needs programs, while they accounted for almost half (48 percent) of the students served.

APPENDIX B

Conclusions

The 148 Vocational Education Special Needs programs operated during FY 1974 were composed of 66 disadvantaged (45 percent), 26 handicapped (17 percent), 43 combination handicapped and disadvantaged (29 percent), and 13 workshops (9 percent). Excluding the workshops, the programs were offered at both the secondary (113--84 percent) and post-secondary (22--16 percent) levels with adult students also served in some of the programs. The 148 programs were offered throughout the State with the counties of Ingham, Macomb, Oakland, St. Clair, and Wayne having the most programs (66--45 percent).

Almost 13,000 participants, 8840 disadvantaged (68 percent) and 4160 handicapped (32 percent), were served by the programs. A higher proportion of minority racial-ethnic group persons were served through these programs than were enrolled in all Michigan schools.

Student attainment of the stated performance objectives was assessed in terms of several attainment categories. The majority (62 percent) of the students met 75 to 100 percent of the objectives while almost a quarter (24 percent) met 50 to 74 percent of the objectives, and less than a sixth (14 percent) met 0 to 49 percent of the objectives. These attainment levels did not vary widely between handicapped and disadvantaged students.

The Special Needs students tended to fare better in programs offered in shared-time high schools and other facilities like hospitals, correctional institutions, and nursing homes, etc. than in area centers, comprehensive high schools, or community colleges. They also did better in programs using a combination of roving and fixed support staff rather than either roving or fixed support staff alone.

The Special Needs programs were more frequently offered in the larger Michigan districts. Further, the programs were more frequently offered in high dropout rate districts than in low dropout rate districts. The participant program completion rate was 88 percent. Of these participant completions, 2850 (27 percent) obtained career employment while 2000 (19 percent) were capable of future vocational classwork without Special Needs assistance. The remaining 5700 (54 percent) will need Special Needs assistance in the future.

A variety of teaching methods and resources was used in the process of delivering services to the Special Needs students. These included audio-visual presentations, discussions, free materials, and tests among others. In addition, supplementary reading and mathematics instruction was provided to nearly a third (33 percent) of the participants.

The program support staff was composed of 629 professionals and 235 paraprofessionals. The professional support staff required for the programs included administrators (23 percent), counselors (22 percent), and teachers (55 percent). Both part-time (70 percent) and full time (30 percent) staff were used. These persons had an average of 15 years of prior work experience including 8 years of previous educational experience and 7 years of prior non-educational experience. Further, over two-thirds (68 percent) of the professionals had masters degrees or above, more than three-fourths (78 percent) held Michigan State Teaching Certificates while a majority (60 percent) held Michigan Vocational Certificates.

There was a higher proportion of minority racial-ethnic group persons among these professionals than for the State as a whole. Additionally, a further trend toward higher proportions of minority group professional staff was apparent since the report on the FY 1973 programs.

Various instructional modes were used in the Special Needs programs. These included large groups (8 percent), small groups of 6-15 students (24 percent), small groups of 5 students or less (16 percent), tutorial setting (10 percent), and some combination of the above (42 percent).

The total cost estimate for the Special Needs programs operated during the 1973 summer and the 1973-74 regular school year was $3,921,305. This figure is subject to slight revision pending vocational education staff completion of the program records. This total cost was divided among the program types as follows: handicapped (17 percent), disadvantaged (44 percent), combination (38 percent), and workshop (1 percent). It resulted in an average allotment per program of $26,495 and an average cost per participant of $301.

This total cost figure was further separated according to the time of program offering in the following manner: summer, 1973 (6 percent), regular 1973-74 school year (93 percent), and two day workshops (1 percent). Concerning program levels the total was divided as follows: secondary (81 percent), post-secondary (18 percent), and workshops (1 percent).